



CITY OF SANTA BARBARA

ORDINANCE COMMITTEE AGENDA REPORT

AGENDA DATE: July 21, 2009

TO: Ordinance Committee Members

FROM: Fire Prevention Bureau, Fire Department

SUBJECT: Proposed Amendments To The 2007 Fire Code - RE: Fire Sprinkler Requirements

RECOMMENDATION:

That the Ordinance Committee consider proposed changes to Chapter 8.04 of the Municipal Code specifying new fire sprinkler requirements for both commercial and residential property, and forward the ordinance amendments to the City Council for introduction and adoption.

BACKGROUND:

On December 4, 2007, the Council adopted Ordinance 5439, which adopted and amended the 2007 California Fire Code. The adoption process included local amendments with findings based on local needs. The California Fire Code and the adopting ordinance both went into effect on January 1, 2008.

At the time of the code adoption, staff at the Fire Prevention Bureau prepared sections amending the Fire Code that would require fire sprinklers in all new residential and commercial construction. The drafted requirements also called for fire sprinklers when certain square footage thresholds were reached in remodels and additions. The new proposed sprinkler sections were removed from the 2007 Fire Code adoption process due to time constraints and the desire to provide a greater opportunity for input from stakeholders. Examples of stakeholders include members of the development community, property owners, architects, general contractors and home builder associations, homeowners and sprinkler contractors.

On March 24, 2009, the proposed changes were presented to the Ordinance Committee. The Committee voted unanimously to forward the changes to the full City Council for adoption.

On April 14, 2009, the amendments came before City Council. At that time, additional questions arose and Council directed staff to prepare answers to the questions before

adoption. Those questions are addressed in Attachment 2, Frequently Asked Questions. In addition, questions arose from the public at the time of the meeting regarding a provision in the revised sections that required existing single family residences to install a sprinkler system for remodels exceeding 1000 square feet or 50% of the existing square footage. The speaker requested that staff consider raising the square footage threshold to 75% and eliminating the 1000 square foot threshold. Although late in the process, staff does not believe that these changes substantially alter the intent of the ordinance and have included those recommendations.

DISCUSSION:

In November 2008, the proposed fire sprinkler amendments were published in the Land Development Team Bulletin. Staff began to receive comments by phone and email and incorporated some of the suggestions into the first public meeting discussion. The meeting was conducted at the David Gebhard Room on December 4, 2008. During and following that meeting fire prevention staff continued to receive input from stakeholders that resulted in making adjustments in the proposed code sections. A second Land Development Team bulletin was published in January and a second public meeting was then conducted on January 22, 2009. Additional suggestions were received and the proposal was refined accordingly. On February 26, 2009, staff presented the proposed fire code sections to the Fire and Police Commission in their regularly scheduled meeting. The current proposal requires that automatic fire sprinklers be installed:

1. In all new buildings, residential and commercial, regardless of square footage. This includes all new single family homes. There is an exception for small utility buildings.
2. In any commercial building undergoing an addition.
3. In all commercial structures undergoing a remodel, if the remodel involves 50% or more of the building.
4. In any residential structure where an addition or a remodel exceeds 75% of the floor area.
5. In any building undergoing a change of use to a more hazardous use.

Fire sprinklers save lives and property. Residential fire sprinklers are strongly supported by the United States Fire Administration (USFA), a Division of the United States Department of Homeland Security. In a position paper dated March 28, 2008 the USFA called for both smoke detectors and fire sprinklers in residential units. They cited research by the Center for Fire Research at the National Institute of Standards and Technology, indicating that the time available to escape a burning home has decreased dramatically over the past decade. One of the reasons is the increasing volatility of home furnishings, which are often manufactured from synthetic materials. Their research indicates that when a smoke detector is installed in a residence, a reduced fatality rate of 63% is expected. When smoke detectors are used in combination with automatic sprinklers, the risk of dying in a structure fire is reduced by 82%. We have

experienced the effectiveness of residential sprinklers in Santa Barbara, with several activations in 2008, one of which saved the life of an unconscious fire victim. On September 22, 2008, the International Code Council adopted the residential sprinkler standard for inclusion into the 2011 Residential Code.

Cost. The National Fire Protection Association conducted a national study and found that the cost of installing sprinklers in single family residences to average \$1.61 per square foot. At the request of stakeholders we attempted to determine local costs, due to the higher overall construction costs in this area. Although it was not possible to determine an exact square footage cost, we contacted local sprinkler contractors and learned that the approximate cost for this area is approximately \$2.50 to \$3.00 per square foot. Residential insurance premium offsets vary, typically between a 5% to 20% reduction in the fire insurance portion of the policy depending on the carrier.

Among the questions posed by members of the public is whether or not the City's standard residential water meter (5/8 inch diameter, 20 Gallon per minute flow capacity) will be sufficient to supply adequate flow to a residential sprinkler system. Although in Staff's experience the 5/8 inch meter has been adequate in past installations, Staff is unable to say that the 5/8 inch meter will be sufficient in all installations. The reason is because every installation is calculated according to the particulars of the lot, home design, size and number of heads in the system, and friction loss due to pipe configuration. In the event that the 5/8 inch meter is not adequate, there may be significant costs associated with upgrading the water meter or installing a dedicated fireline. An estimate of the types of costs incurred has been added to the Attachment 2, Frequently Asked Questions.

Staff requests that the Committee consider the draft ordinance with the most recent revisions and forward the ordinance to the Council for introduction and subsequent adoption.

ATTACHMENT(S): 1. Draft Ordinance
2. Answers to Frequently Asked Questions

PREPARED BY: Joseph Poiré, Fire Marshal

SUBMITTED BY: Andrew DiMizio, Interim Fire Chief

APPROVED BY: City Administrator's Office

ORDINANCE COMMITTEE DISCUSSION DRAFT 7/21/09
SHOWING CHANGES FROM 4/14/09 COUNCIL INTRODUCTION DRAFT

ORDINANCE NO. _____

AN ORDINANCE OF THE COUNCIL OF THE CITY
OF SANTA BARBARA AMENDING SUBSECTION E
OF SECTION 8.04.020 AND SUBSECTIONS C AND D
OF SECTION 22.04.020 OF THE SANTA BARBARA
MUNICIPAL CODE CONCERNING LOCAL
REQUIREMENTS FOR THE INSTALLATION OF
AUTOMATIC FIRE SPRINKLERS

THE CITY COUNCIL OF THE CITY OF SANTA BARBARA DOES ORDAIN AS
FOLLOWS:

SECTION 1. Findings

1. Climatic Conditions

- A. The City of Santa Barbara is located in a semi-arid Mediterranean type climate. It annually experiences extended periods of high temperatures with little or no precipitation. Hot, dry winds, ("Sundowners") which may reach speeds of 60 m.p.h. or greater, are also common to the area. These climatic conditions cause extreme drying of vegetation and common building materials. In addition, the high winds generated often cause road obstructions such as fallen trees. Frequent periods of drought and low humidity add to the fire danger. This predisposes the area to large destructive fires. In addition to directly damaging or destroying buildings, these fires also disrupt utility services throughout the area. The City of Santa Barbara and adjacent front country have a history of such fires, including the 1990 Painted Cave Fire and the 1977 Sycamore Canyon Fire. In 2007, the city was impacted by the back country Zaca Fire and in 2008 the Tea Fire destroyed over 150 homes within the city.
- B. The climate alternates between extended periods of drought and brief flooding conditions. Flood conditions may affect the Fire Department's ability to respond to a fire or emergency condition. Floods also disrupt utility services to buildings and facilities within the City.

- C. The city's core area continues to become more concentrated, with new multi-storied mixed-use structures whose occupants, along with the structures themselves, could be vulnerable to uncontrolled fires due to lack of available water. This necessitates the need for additional and on-site fire protection features.
- D. These dry climatic conditions and winds contribute to the rapid spread of even small fires originating in high-density housing or vegetation. These fires spread very quickly and create a need for increased levels of fire protection. The added protection of fire sprinkler systems and other fire protection features will supplement normal fire department response by providing immediate protection for the building occupants and by containing and controlling the fire spread to the area of origin. Fire sprinkler systems will also reduce the use of water for firefighting by extinguishing fires at an early stage.

2. Topographical conditions:

- A. Natural slopes of 15 percent or greater generally occur throughout the foothills of Santa Barbara, especially in the High Fire Hazard areas such as the Foothill and Extreme Foothill zones. With much of the populated lower elevation areas already built upon, future residential growth is and will continue to occur on steeper slopes and in areas with greater constraints in terrain such as the Foothill and Extreme Foothill zones. Geographic and land-use constraints throughout the city have resulted in greater density along with a large number of mixed use projects, combining residential with commercial occupancies.
- B. Traffic and circulation congestion is an ongoing problem throughout the region. Traffic flow in and through Santa Barbara is limited by the transverse Santa Ynez Mountains, which provide limited passage to the north, and the Pacific Ocean to the south. The narrow corridor that Highway 101 occupies is subject to traffic delays under normal conditions and emergency events can render the highway impassable. This has the double effect of preventing traffic from leaving the city and potentially preventing emergency workers, who often live out of town, from entering. This condition existed for several days during the La Conchita slide in 2005 and it disrupted the return of city workers who live in the Ventura area. At various times in the city's history, Highway 101 has also been closed north of the city due to mudslides, fires and flooding, most recently near Gaviota Pass, where a fire also temporarily closed the Rail access.

In addition, roads in the foothills are narrow, often steep and vulnerable to emergency conditions. Some of the older roadways are below current access standards and pose challenges to responding emergency vehicles, especially fire engines. These challenges are exacerbated in the event of an evacuation, particularly in the Foothill and Extreme Foothill zones.

- C. These topographical conditions combine to create a situation which places fire department response time to fire occurrences at risk, and makes it necessary to provide automatic on-site fire-extinguishing systems and other protection measures to protect occupants and property.

3. Geological conditions:

The City of Santa Barbara region is a densely populated area that has buildings constructed over and near a vast and complex network of faults that are believed to be capable of producing future earthquakes similar or greater in size than the 1994 Northridge and the 1971 Sylmar earthquakes. Known faults in the city include the Lavigia, North Channel Slope, Mesa and Mission Ridge-More Ranch faults. Additional faults near the city would also be capable of disruption of services, including fire protection. The Southern California Earthquake Center predicts that there is an 80-90% probability of a magnitude 7.0 earthquake somewhere in Southern California before the year 2024. Regional planning for reoccurrence of earthquakes is recommended by the State of California, Department of Conservation.

- A. Previous earthquakes have been accompanied by disruption of traffic flow and fires. A severe seismic event has the potential to negatively impact any rescue or fire suppression activities because it is likely to create obstacles similar to those indicated under the high wind section above. With the probability of strong aftershocks there exists a need to provide increased protection for anyone on upper floors of buildings. The October 17, 1989, Loma Prieta earthquake resulted in one major fire in the Marina District (San Francisco). When combined with the 34 other fires locally and over 500 responses, the department was taxed to its fullest capabilities. The Marina fire was difficult to contain because mains supplying water to the district burst during the earthquake. In addition to gas mains, individual gas and electric service connections to residences may provide both fuel and ignition sources during a seismic event. This situation creates the need for both additional fire protection and automatic on-site fire protection for building occupants.
- B. Road circulation features located throughout Santa Barbara also make amendments reasonably necessary. There are major

roadways, highways and flood control channels that create barriers and slow response times. Hills, particularly in the Foothill and Extreme Foothill zones, slopes, street and storm drain design accompanied by occasional heavy rainfall, cause roadway flooding and landslides and at times may make an emergency access route impassable. Much of Sycamore Canyon lies in an area subject to geologic activity, as witnessed by the recent closure of the road due to the slide potential.

The climatic, topographical, and geological conditions described above make it prudent to rely upon automatic fire sprinkler systems to mitigate extended fire department response times. The automatic sprinkler requirements specified in this ordinance are intended to lessen life safety hazards and keep fires manageable with potentially reduced fire flow (water) requirements for a given structure.

SECTION 2. Subsection E of Section 8.04.020 of the Santa Barbara Municipal Code is deleted in its entirety and readopted to read as follows:

E. **Chapter 9** of the International Fire Code is amended as follows:

1. **Section 903.2 “Where required.”** of Section 903 of the International Fire Code is amended to add Section 903.2.18 to read as follows:

903.2.18 City of Santa Barbara Local Requirements. Approved sprinkler systems shall be provided throughout a building in connection with the projects or changes of occupancy listed in this Section 903.2.18 or as specified elsewhere in this Section 903.2, whichever is more protective.

903.2.18.1 New Buildings, Generally. The construction of a new building containing any of the following occupancies: A, B, E, F, H, I, L, M, R, S or U.

Exceptions: A new building containing a Group U occupancy that is constructed in the City’s designated High Fire Hazard Area is not required to provide a sprinkler system as long as the building does not exceed 500 square feet of floor area. A new building containing a U occupancy that is constructed outside the City’s designated High Fire Hazard Area is not required to provide a sprinkler system as long as the building does not exceed 5000 square feet of floor area.

903.2.18.2 New Buildings in the High Fire Hazard Area. The construction of any new building within the City’s designated High Fire Hazard Area.

Exception: A new building containing a Group U occupancy that is constructed in the City’s designated High Fire Hazard Area is not required to

provide a sprinkler system as long as the building does not exceed 500 square feet of floor area.

903.2.18.3 Additions to Buildings Other than Single Family

Residences. The addition of floor area to an existing building that contains any occupancy other than Group R, Division 3.

903.2.18.4 Remodels of Buildings Other than Single Family

Residences. The remodel or alteration of the interior of an existing building that contains any occupancy other than Group R, Division 3, where the floor area of the portion of the building that is modified or altered exceeds 50% of the existing floor area of the building. For purposes of this section, all modifications or alterations to an existing building that occur after the effective date of the ordinance adopting this section shall be counted in the aggregate toward the 50% threshold measured against the floor area of the building as it existed on the effective date of the ordinance adopting this section.

903.2.18.5 Additions to or Remodels of Single Family

Residences. The addition of floor area to, or the modification or alteration of the interior of, an existing building that contains a Group R, Division 3 occupancy, where the floor area of the portion of the building that is added, modified, or altered exceeds ~~1,000 square feet or 50~~75% of the existing floor area of the building. For purposes of this section, all additions, modifications, or alterations to an existing building that occur after the effective date of the ordinance adopting this section shall be counted in the aggregate toward the ~~1,000 square foot threshold or the~~ 5075% threshold measured against the floor area of the building as it existed on the effective date of the ordinance adopting this section.

903.2.18.6 Change of Occupancy to a Higher Hazard

Classification. Any change of occupancy in an existing building where the occupancy changes to a higher hazard classification.

903.2.18.7 Computation of Square Footage. For the purposes of this Section 903.2.18, the floor area of buildings shall be computed in accordance with the definition of "Floor area, Gross" provided in Section 1002.1 of the California Building Code.

903.2.18.8 Existing use. Except as provided in this Section 903.2, any building in existence at the time of the effective date of the ordinance adopting this section may continue with such use if such use was legal at the time.

2. **Section 907 "Fire Alarm and Detection Systems"** of the International Fire Code is amended to add Section 907.1.5 to read as follows:

907.1.5 Mixed Use Occupancies. Where residential occupancies are combined with commercial occupancies, a fire alarm system shall be installed

which notifies all occupants in the event of a fire. The system shall include automatic smoke detection throughout the commercial and common areas. In addition, a notification system shall be installed in a manner and location approved by the fire code official that indicates the presence of residential dwelling units in accordance with Municipal Code Section 8.04.030 B.

SECTION 3. Subsections C and D of Section 22.04.020 of the Santa Barbara Municipal Code are deleted in their entirety and readopted to read as follows:

C. Section 903.2 “Where Required.” of Section 903 is amended to add Section 903.2.18 to read as follows:

903.2.18 City of Santa Barbara Local Requirements. Approved sprinkler systems shall be provided throughout a building in connection with the projects or changes of occupancy listed in this Section 903.2.18 or as specified elsewhere in this Section 903.2, whichever is more protective.

903.2.18.1 New Buildings, Generally. The construction of a new building containing any of the following occupancies: A, B, E, F, H, I, L, M, R, S or U.

Exceptions: A new building containing a Group U occupancy that is constructed in the City’s designated High Fire Hazard Area is not required to provide a sprinkler system as long as the building does not exceed 500 square feet of floor area. A new building containing a U occupancy that is constructed outside the City’s designated High Fire Hazard Area is not required to provide a sprinkler system as long as the building does not exceed 5000 square feet of floor area.

903.2.18.2 New Buildings in the High Fire Hazard Area. The construction of any new building within the City’s designated High Fire Hazard Area.

Exception: A new building containing a Group U occupancy that is constructed in the City’s designated High Fire Hazard Area is not required to provide a sprinkler system as long as the building does not exceed 500 square feet of floor area.

903.2.18.3 Additions to Buildings Other than Single Family Residences. The addition of floor area to an existing building that contains any occupancy other than Group R, Division 3.

903.2.18.4 Remodels of Buildings Other than Single Family Residences. The remodel or alteration of the interior of an existing building that contains any occupancy other than Group R, Division 3, where the floor area of the portion of the building that is modified or altered exceeds 50% of the existing floor area of the building. For purposes of this section, all modifications or alterations to

an existing building that occur after the effective date of the ordinance adopting this section shall be counted in the aggregate toward the 50% threshold measured against the floor area of the building as it existed on the effective date of the ordinance adopting this section.

903.2.18.5 Additions to or Remodels of Single Family

Residences. The addition of floor area to, or the modification or alteration of the interior of, an existing building that contains a Group R, Division 3 occupancy, where the floor area of the portion of the building that is added, modified, or altered exceeds ~~1,000 square feet or 50~~75% of the existing floor area of the building. For purposes of this section, all additions, modifications, or alterations to an existing building that occur after the effective date of the ordinance adopting this section shall be counted in the aggregate toward the ~~1,000 square foot threshold or the 50~~75% threshold measured against the floor area of the building as it existed on the effective date of the ordinance adopting this section.

903.2.18.6 Change of Occupancy to a Higher Hazard

Classification. Any change of occupancy in an existing building where the occupancy changes to a higher hazard classification.

903.2.18.7 Computation of Square Footage.

For the purposes of this Section 903.2.18, the floor area of buildings shall be computed in accordance with the definition of "Floor area, Gross" provided in Section 1002.1 of the California Building Code.

903.2.18.8 Existing use.

Except as provided in this Section 903.2, any building in existence at the time of the effective date of the ordinance adopting this section may continue with such use if such use was legal at the time.

D. [Reserved.]

Section 4. This ordinance shall become effective ~~on July 1, 2009~~thirty (30) days following adoption. The provisions of this ordinance shall apply to any building permit application for the construction, addition, or remodel of any structure that is submitted to the City ~~on or after July 1, 2009~~on or after the effective date of this ordinance; provided, however, the provisions of this ordinance shall not apply to an application for a building permit for the construction of a residential structure to replace a residential structure that was damaged or destroyed by the Tea Fire or the Jesusita Fire and where the ownership of the property has not changed since the date of the fire.



City of Santa Barbara
Fire Prevention Bureau

Residential Sprinkler System Frequently Asked Questions and Facts

Where do I tell people to start? Will they find fire sprinklers in the yellow pages?

If a home builder is not familiar with contractors that install residential fire sprinklers, there are several options.

Look in the local Yellow Pages under "Sprinklers, Fire"

Ask a local or state fire marshal if contractors in your state are required to be licensed. If they are, contact the state licensing board for a current list of licensed contractors.

Contact fire sprinkler contractor associations for names of residential sprinkler contractors in your area.

An increasing number of contractors have Web pages describing their capabilities.

Any professional fire sprinkler contractor can install these systems, but for best results look for a contractor that specializes in residential fire sprinkler systems or one that has a residential sprinkler installation unit within the company.

How much should people expect to pay for a fire sprinkler system?

If installed during new home construction, home fire sprinklers often cost no more than 1 to 1 ½ percent of the total building cost, which is about what they would pay for an upgrade in carpeting. The investment in a family's fire protection may be slightly lower or higher, depending on the location and complexity of the home. In Santa Barbara the cost is approximately \$2.50 to \$3.00 per square foot depending on complexity of the installation.

A review of potential water upgrade costs is detailed below, and contractor rates vary. The City Fire Department plan review and inspection fee for a single family residence sprinkler system is \$171.00.

How long should installation take? Can other construction work continue while the sprinklers are going in?

Fire sprinkler installations are similar to electricity, plumbing or any other operational system in a home. The total time involved will depend on the size and complexity of the home.

Certain portions of the system (i.e. water piping) are more easily and cost-effectively installed in the earliest stages of construction, while the actual finish (i.e. installing the fire sprinkler devices, testing the system, etc.) will take place after the house is framed. Fire sprinkler systems are often completed prior to the other systems in a home, but other mechanical trades may work alongside the sprinkler contractor if necessary.

Ordinance Committee, Attachment 2
7/21/09

How are fire sprinkler systems maintained?

A residential fire sprinkler system is basically maintenance free. The only testing required on a regular basis is opening the drain/test valve to check the alarm operation. The rest of the system is designed to operate properly for 20 years or more without any maintenance.

Some basic precautions to safeguard the fire sprinkler system are: Avoid painting or otherwise covering the fire sprinkler devices, as that will affect their sensitivity to heat.

Do not hang decorations, plants or other objects from the sprinkler or piping.

Other things to consider:

- Test the system periodically by opening the test valve and listening for an alarm bell.
- Know the location of the system shutoff valve.
- Make sure the system control valve is always open.
- Have your system reevaluated for needed upgrades when:
 - Water supply changes--addition or change of backflow device or water meter, or reduction of public water supply.
 - Building changes (walls, partitions, additions).

What if a home will not be connected to a public water supply?

Homes can be protected by automatic fire sprinklers in even the most remote areas. Several manufacturers offer self-contained water tanks to supply residential fire sprinkler systems. These tanks are designed to fit in a garage or another storage area of the home, and they hold enough water to comply with the National Fire Protection Association Standard 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes.

Will homeowner's insurance premiums go up?

No. Generally insurance rates will go down because fire sprinklers will keep damage low. Shop around; the savings vary by insurance company.

Modern fire sprinklers provide unobtrusive protection.

Unlike commercial fire sprinklers, residential sprinklers are small, and can be recessed into ceilings or walls. Some models are completely concealed by plates that can be matched to room paint colors. Modern residential sprinkler heads have been designed to be virtually unnoticeable even in open beam and cathedral ceilings.

How do fire sprinklers work?

Automatic fire sprinklers are individually heat-activated and attached to a network of piping with water under pressure. When the heat of a fire raises the sprinkler temperature to its operating temperature (usually 135° F), a solder link will melt or a liquid-filled glass bulb will shatter to open that sprinkler, releasing water and sounding an alarm. By acting automatically at the origin of a fire, sprinklers prevent a fire from growing to a dangerous size.

Do sprinklers go off accidentally?

It is possible for a sprinkler to discharge accidentally, but this is an extremely rare occurrence in systems which are properly maintained. Records indicate that only 1 in 16,000,000 sprinklers per year will open accidentally.

Ordinance Committee, Attachment 2
7/21/09

Do fire sprinklers cause widespread water damage?

Fire department hoses typically discharge ten to a hundred times more water than that discharged by sprinklers. Since *only* the sprinkler closest to the fire is activated, the total amount of water is limited. Fire damage is also limited; most fires are put out quickly, by only a few sprinklers, in areas with a fully functional sprinkler system.

Will the sprinkler system be effective during a wildland fire?

Residential fire sprinkler systems are a life safety device designed for interior compartment fires and not for exterior fires such as a wildland fire. Statistically, fires originating in the home are the most common cause of fire death. Although the Fire Department has documented one incident during the Tea Fire where the residential sprinkler system saved a home when the exterior deck ignited, that incident is the exception. The most effective life safety component in a wildland fire is evacuation. New construction requirements, defensible space and vegetation management in wildland areas are more effective defenses for structures against wildfire.

If we get another Tea Fire or Jesusita Fire, won't we have a lot of the sprinklers going off in the newly sprinklered homes thus causing a precipitous drop in water pressure and causing inadequate hydrant pressure during the next wildland fire?

No. The sprinkler heads in a residential sprinkler system are activated by heat from within the compartment they are protecting, not from the exterior. In the case of the Tea Fire, the houses destroyed during that event also had their water systems and associated piping and appliances destroyed, which in turn, allowed water to run freely until the water to the property was turned off. In essence, we will have the same water pressure issues in a Tea Fire scenario regardless if houses are equipped with sprinkler systems or not.

Is a 5/8 inch domestic water meter adequate to supply a residential fire sprinkler system?

The 5/8 inch water meter debate continues in fire protection circles, with engineering experts on both sides of the issue. For Single family residences, the City of Santa Barbara generally installs 5/8 inch water meters that are designed to operate at a flow rate of 20 Gallons Per Minute (GPM). NFPA 13D requires 18 GPM as a general rule to operate the most remote sprinkler head. The standard domestic water meter provides 20 GPM. There are engineered options within NFPA 13D that allows the Fire Department to accept approved and listed sprinkler heads that operate at a lower GPM but still provide the same level of protection. On rare occasions when the domestic supply cannot meet the system demand tanks and/or pumps can be added to increase flow and pressure. The City has allowed the installation of home fire sprinklers as a mitigation measure in lieu of other requirements for years. In the approximately 100+ residences throughout the City that currently have automatic fire sprinkler systems it has been the experience of the Santa Barbara City Fire Prevention Bureau that a 5/8 inch water meter has worked for the majority of the applications.

That being said, a 5/8 inch water meter may not be adequate for all installations. The reason is because every installation is calculated according to the particulars of the lot such as the grade, length of the supply pipe, home design, size, number of heads and friction loss due to pipe configuration. In the event that the 5/8 inch water supply does not provide adequate water, there are options available to upgrade the water supply. Potential costs associated with water meter upgrade are estimated below.

The City water rates quoted below are from the Public Works Water Resources Fee Schedule effective July 1, 2009.

Ordinance Committee, Attachment 2
7/21/09

1. A standard 5/8 inch water meter has an annual fee of \$143.40 and a one time connection fee of \$2041.00. Water usage is then charged by hundred cubic feet (hcf) used.
2. To upgrade to a 1 inch meter, the annual fee is \$358.80, an increase of \$215.40 over the 5/8 inch meter. The one time connection fee of \$2506.00 is \$465.00 greater than the 5/8 inch supply.
3. City policy also allows for unmetered water for a private fireline, using a 2 inch supply. This would require the builder to trench and tap the City water main, which would involve costs that will vary according to difficulty. Currently, the City fee for tapping the water main is \$885.00. There are a limited number of contractors allowed to perform this work and estimates for a typical connection, trench and repair of the City Street range from \$4000.00 to \$8000.00. in addition to the underground installation, a backflow device is required at an approximate cost of \$300.00. Although unmetered, there is also an annual fee of \$55.92 for the private fire line.

Pipe / Meter Size of Service	5/8"	1"	2"(Fire)
Annual	\$143.40	\$358.80	\$55.92
Connection	\$2041.00	\$2506.00	\$885.00
Trench (one time fee)			\$8,000.00 (estimate)
Backflow (one Time Fee)			\$300.00 (estimate)
First Year Totals*	\$2184.40	\$2864.80	\$9240.92
Subsequent years*	\$143.40	\$358.80	\$55.92

* Does not include the single family residence hcf usage rate of \$2.84 for the first 4 hundred cubic feet, \$4.76 for the next 16 hcf and \$5.01 for hcf over 20.

FACTS

Fires kill more people in the United States every year than all natural disasters combined.

80% of all fire deaths occur in the home. The single most effective way to prevent fire-related deaths is the installation of residential fire sprinklers. Combined with smoke alarms, they cut the risk of dying in a home fire by 82% compared to having neither.

Fire sprinklers can save money for developers, builders, home owners, and communities.

Through the use of trade-ups, developers and builders can achieve reduced construction costs while providing higher value homes for their customers. In the event of a home fire, homeowners can expect financial losses 90% lower than those that occur from fires in unsprinklered homes. Communities can deploy emergency services resources more effectively by reducing the burden caused by home fires.

Ordinance Committee, Attachment 2
7/21/09

Installing both smoke alarms and a fire sprinkler system reduces the risk of death in a home fire by 82%, relative to having neither.

Facts & Figures

- Sprinklers typically reduce chances of dying in a fire and the average property loss by one-half to two-thirds compared to where sprinklers are not present.
- In 2002, 79% of fires occurred in the home, resulting in 2,670 fire deaths.

Only the sprinkler closest to the fire will activate, spraying water directly on the fire. Each sprinkler is individually activated by heat. Despite "sight gags" on TV sit-coms, smoke does not trigger sprinkler operation. The rest of the sprinklers in a house will not activate unless there is also a fire in that location. 90% of all home fires are contained with a single sprinkler.

Fire hoses, on average, use more than 8 1/2 times the water that sprinklers do to contain a fire.

According to the Scottsdale Report, a 15-year study of fire sprinkler effectiveness, a fire sprinkler uses, on average, 341 gallons of water to control a fire. Firefighters, on average, use 2,935. Reduced water damage is a major source of savings for homeowners.

The likelihood that a sprinkler will accidentally discharge because of a manufacturing defect is extremely rare.

Sprinkler mishaps are generally less likely and less severe than accidents involving home plumbing systems.